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| EXAMINER |
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MOORE JR, MICHAEL J

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| ART UNIT | PAPER NUMBER |
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2666

DATE MAILED: 05/19/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/668,407

Applicant(s)

CHU, TAM-ANH

Examiner

Michael J. Moore, Jr.

Art Unit

2666

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 22 September 2000.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-48 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-48 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

2. Claims **2, 18, and 34** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.
3. Claim **2** recites the limitation "the chunks" in lines 2 and 3. There is insufficient antecedent basis for this limitation in the claim.
4. Claim **18** recites the limitation "the chunks" in line 2. There is insufficient antecedent basis for this limitation in the claim.
5. Claim **34** recites the limitation "the chunks" in lines 2 and 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims **1-48** are rejected under 35 U.S.C. 102(e) as being anticipated by Bertagna et al. (U.S. 6,088,745). The Bertagna et al. reference discloses all of the limitations of the listed claims with the reasoning that follows.

Regarding claim **1**, “a buffer memory of a first type to store data associated with a connection identifier corresponding to a channel in a network” is anticipated by FIFO 310 (buffer memory of a first type) that contains data associated with pointers (connection identifiers) stored in free buffer pointer manager 180 in Figure 3. “Data being organized into at least one chunk based on a linked list” is anticipated by data buffers shown within packet queue 120 in Figure 5. “The connection identifier identifying a connection in the channel” is anticipated by pointers stored in free buffer pointer manager 180 of Figure 3 that are selected for inbound packets based upon a known or presumed protocol type. “The data being part of a data stream associated with the connection” is anticipated by FIFO 310 of Figure 3, which contains packets from connection data streams. Lastly, “a packet memory of a second type coupled to the buffer memory to provide access to the stored data when a transfer condition occurs” is anticipated by packet queue 120 of Figure 1.

Regarding claims **2, 18, and 34**, a descriptor memory for storing chunk information is anticipated by head/tail pointer stores 175 of Figure 5. A controller coupled to the descriptor memory and buffer memory(s) to control data transfer is anticipated by packet queue transfer controller 160 of Figure 1.

Regarding claims **3, 19, and 35**, a chunk header to store linked list chunk information is anticipated by the header portions of buffers 522, 524, 526, etc. shown in

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packet queue 120 of Figure 5. A chunk data block for storing data is anticipated by the data portions of buffers 522, 524, 526, etc. shown in packet queue of 120 of Figure 5.

Regarding claims **4, 20, and 36**, the chunk information including a pointer to point to one other chunk is anticipated by header portion of buffer 522, which points to the header portion of buffer 524.

Regarding claims **5, 21, and 37**, one chunk being either a head chunk, a linking chunk, or a tail chunk is anticipated by the buffers within packet queue 120 that store chunks as described in column 6, lines 6-35. These buffered chunks correspond to different portions of a data stream.

Regarding claims **6, 22, and 38**, the descriptor information including head or tail pointers that point to head and tail chunks, respectively, is anticipated by head/tail pointer store 175 of Figure 5, which stores head and tail pointers for each output queue and points to buffers (containing head and tail chunks) within packet queue 120.

Regarding claims **7, 23, and 39**, the connection identifier pointing to one of the head and tail pointers is anticipated by pointers stored in free buffer pointer manager 180 that point to buffers 322 and 324 as shown in Figure 3.

Regarding claims **8, 24, and 40**, an ingress queue used to buffer a packet data stream from an ingress of a channel where a packet has a size is anticipated by FIFO queue 110 of Figure 1. A queue segmenter to chunk the data stream into at least one chunk is anticipated by the segments of FIFO queue 110 shown in Figure 1.

Regarding claims **9, 25, and 41**, an input buffer memory used to store chunks from the queue segmenter is anticipated by FIFO queue 110 of Figure 1, which stores chunks for transmission to packet queue 120.

Regarding claims **10, 26, and 42**, an input buffer memory comprising a queue associated with a connection identifier is anticipated by FIFO queue 310, which is associated with pointers (connection identifiers) from free buffer pointer manager 180 of Figure 3. A queue having a threshold is anticipated by the filling of buffers 322, 324, etc. (threshold) spoken of in column 4, lines 45-55. A queue being configured to store a chunk is anticipated by FIFO queue 110 of Figure 1, which stores chunks for transmission to packet queue 120.

Regarding claims **11, 27, and 43**, the transfer condition including a queue threshold overflow is anticipated by the filling of buffers 322, 324, etc. (threshold) spoken of in column 4, lines 45-55. In column 4, lines 45-55, it is stated that if buffer 322 is filled before the entire packet has been written (threshold overflow), chunks are then written to the buffer addressed by the second pointer in the pointer group (transfer condition), represented by buffer 324.

Regarding claims **12, 28, 44**, a data combiner for combining the data portion of one chunk with the data portion of another chunk is anticipated by packet queue 120 of Figure 5. A write circuit used to burst write a combined chunk of data to a second memory is anticipated by FIFO queue 310 of Figure 3. The combined chunk of data forming a contiguous data block in the second memory is anticipated by column 4, lines 58-61. It is stated that since pointers in a pointer group address contiguous address

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space, inbound packets are guaranteed to be written into a contiguous address space in packet queue 120 of Figure 5.

Regarding claims **13, 29, and 45**, a list creator to create an ordered list of pointers associated with chunk headers is anticipated by free buffer pointer list 140 of Figure 1. The ordered list of pointers being transferred to output buffer memory at a location pointed to by the head pointer is anticipated by the transfer shown in Figure 5. Figure 5 shows information in buffers 522, 524, 526, 532, 534, 536 that contain pointers that are transferred to output port 550. These buffers (522, 524, 526, 532, 534, 536) are pointed to by head pointers within head/tail store 175. A read circuit to burst transfer the contiguous data block from a second memory to the output buffer memory using the ordered list of pointers is anticipated by output port transfer controller 170 of Figure 5. An egress queue to buffer the contiguous data is anticipated by output ports 150 of Figure 1.

Regarding claims **14, 30, and 48**, the first type being a static random access memory and the second type being a synchronous dynamic random access memory is anticipated by column 4 lines 66 and 67. It is stated that packet queue 120 of Figure 5 may be implemented in random access memory.

Regarding claims **15, 31, and 46**, input and output buffer memories having same sizes is anticipated by the standard-sized buffers spoken of in column 2, lines 32-35.

Regarding claims **16, 32, and 47**, input and output buffer memories having different sizes is anticipated by an implementation in column 2, lines 23-31 where output

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buffer storage may be implemented in a substantially smaller memory, reducing memory overhead.

Regarding claim **17**, “storing data associated with a connection identifier corresponding to a channel in a network in a buffer memory of a first type” is anticipated by FIFO 310 (buffer memory of a first type) that contains data associated with pointers (connection identifiers) stored in free buffer pointer manager 180 in Figure 3. “Data being organized into at least one chunk based on a linked list” is anticipated by data buffers shown within packet queue 120 in Figure 5. “The connection identifier identifying a connection in the channel” is anticipated by pointers stored in free buffer pointer manager 180 of Figure 3 that are selected for inbound packets based upon a known or presumed protocol type. “The data being part of a data stream associated with the connection” is anticipated by FIFO 310 of Figure 3, which contains packets from connection data streams. Lastly, “providing access to the stored data using a packet memory of a second type when a transfer condition occurs” is anticipated by packet queue 120 of Figure 1.

Regarding claim **33**, “a channel in a network having an ingress and egress” is anticipated by Figure 1, which shows ingress FIFO queue 110 and egress output ports 150. “A data buffer circuit coupled to the channel to buffer data transmitted over the channel” is anticipated by the system of Figure 1. “An input buffer memory of a first type to store data associated with a connection identifier corresponding to the channel” is anticipated by FIFO 310 (buffer memory of a first type) that contains data associated with pointers (connection identifiers) stored in free buffer pointer manager 180 in Figure

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3. "The data being organized into at least one chunk based on a linked list" is anticipated by data buffers shown within packet queue 120 in Figure 5. "The connection identifier identifying a connection in the channel" is anticipated by pointers stored in free buffer pointer manager 180 of Figure 3 that are selected for inbound packets based upon a known or presumed protocol type. "The data being part of a data stream associated with the connection" is anticipated by FIFO 310 of Figure 3, which contains packets from connection data streams. "An output buffer memory of the first type to store the data transferred from the input buffer memory" is anticipated by output ports 150 of Figure 1. Lastly, "a packet memory of a second type coupled to the input and output buffer memories to provide access to the stored data when a transfer condition occurs" is anticipated by packet queue 120 of Figure 1.

Conclusion

8. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Janoska et al. (U.S. 6,539,024), Moriwaki et al. (U.S. 2001/0009551), Bonomi et al. (U.S. 6,349,089), Carmean et al. (U.S. 6,366,984), Bonomi et al. (U.S. 6,011,775), Herring et al. (U.S. 6,542,502), Wong (U.S. 6,721,796), Chrin et al. (U.S. 6,628,652), Brownhill et al. (U.S. 5,875,189), Bonomi et al. (U.S. 6,396,834), Kao (U.S. 6,523,060), Choi et al. (U.S. 6,496,478), Simpson et al. (U.S. 6,128,306), Aimoto (U.S. 6,570,876), Drummund-Murray et al. (U.S. 6,594,270), Lindeborg et al. (U.S. 6,556,579), Wicklund (U.S. 6,295,295), Odenwald, Jr. (U.S. 6,310,884), and Agrawala et al. (U.S. 6,320,865) are all references that contain material pertinent to this application.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael J. Moore, Jr. whose telephone number is (703) 305-8703. The examiner can normally be reached on Monday-Friday (8:30am - 5:00pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Seema S. Rao can be reached at (703) 308-5463. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Michael J. Moore, Jr.
Examiner
Art Unit 2666

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